KANAWHA COUNTY,WEST VIRGINIA
Nontechnical Soils Descriptions
AGR (Agronomic)
SOI (Basic Soils)
GSG (Grassland Suitability)
WSD (Woodland Suitability)
URB (Urbanland)

Soil Map Unit	Category	Description Number	Non Technical Descriptions for Kanawha County, West Virginia	Soil Name	Capability Class
AgB	AGR	002B	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If this soil is cultivated, using a conservation tillage system, farming on the contour, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes and rotational grazing.	Allegheny loam, shale substratum, 3 to 8 percent slopes	IIe
AgB	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Allegheny loam, shale substratum, 3 to 8 percent slopes	IIe
AgB	SOI	002	These Allegheny soils are deep and well drained soils on old stream terraces. These soils have a medium to coarse textured surface and medium to moderately coarse textured subsoil, through which water moves at a moderate rate (estimated permeability .6 to 2.0 inches per hour). These soils are under laid by finer textured shale bedrock that may serve as a layer slowing down water impedance in the substrata. These soils are underlain by		

			bedrock or other alluvial sediments, usually at depths greater than 4 feet. Natural fertility is low and available water capacity is high.		
AgB	URB	002B	This soil has few, if any, limitations for community development.		
AgB	WSD	002B	This soil has high potential for trees. Erosion on logging roads and skid trails is a management concern, but it can be reduced by placing the roads and trails on the contour.		
AgC	AGR	002C	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes and rotational grazing.	Allegheny loam, shale substratum, 8 to 15 percent slopes	IIIe
AgC	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Allegheny loam, shale substratum, 8 to 15 percent slopes	IIIe
AgC	SOI	002	These Allegheny soils are deep and well drained soils on old stream terraces.		

			These soils have a medium to coarse textured surface and medium to moderately coarse textured subsoil, through which water moves at a moderate rate (estimated permeability .6 to 2.0 inches per hour). These soils are under laid by finer textured shale bedrock that may serve as a layer slowing down water impedance in the substrata. These soils are underlain by bedrock or other alluvial sediments, usually at depths greater than 4 feet. Natural fertility is low and available water capacity is high.		
AgC	URB	002C	Slope is the main limitation of this soil for community development.		
AgC	WSD	002C	This soil has high potential for trees. Erosion on logging roads and skid trails is a management concern, but it can be reduced by placing the roads and trails on the contour.		
CaC	AGR	002C	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes and rotational grazing.	Clymer loam, 10 to 20 percent slopes	IIIe

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CaC	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Clymer loam, 10 to 20 percent slopes	IIIe
CaC	SOI	001	These Clymer soils are deep well drained soil found on uplands. Estimated permeability is moderate (0.6 to 2.0 inches per hour). These soils have a medium textured surface and subsurface. This soil is underlain by bedrock at depths of 40 to 60 inches. Natural fertility is moderate and available water capacity is moderate to high.		
CaC	URB	002C	Slope is the main limitation of this soil for community development.		
CDD	AGR	109D	These soils have limited suitability for cultivated crops and are better suited to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a major management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil are practices that help to control erosion and to maintain fertility and tilth. If these soils are used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, and rotational grazing.	Clymer-Dekalb complex, moderately steep	IVe

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CDD	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Clymer-Dekalb complex, moderately steep	IVe
CDD	SOI	004	This Clymer-Dekalb complex consists of Clymer and Dekalb soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Clymer soils are deep, well drained soils found on upland ridges and side slopes. Estimated permeability is moderate (0.6 to 2.0 inches per hour). These soils have a medium textured surface and subsurface. This soil is underlain by siltstone or sandstone bedrock at depths of 40 to 60 inches. Natural fertility of the Clymer soil is moderate and available water capacity is moderate to high. Dekalb soils are moderately deep, well drained soils on uplands. They have moderately coarse textured surface layers and moderately coarse to medium textured subsoils. The subsoil has over 35% sandstone fragments. The subsoil has moderately rapid (estimated 2.0 to 6.0 inches per hour) permeability. They are underlain at 20 to 40 inches by sandstone, interbedded with some siltstone and shale. Natural fertility of the Dekalb soil is low and		

			available water capacity is very low to moderate.		
CDE	AGR	109E	These soils are not suited to cultivated crops or hay, but are suited to pasture. The hazard of erosion is very severe in unprotected areas and is a major management concern. If these soils are used for pasture, overgrazing is a major management concern. Proper stocking rates to maintain desirable grasses and legumes and rotational grazing are major pasture management needs.	Clymer-Dekalb complex, steep	Vie
CDE	GSG	AH3	AH3—Acid Hills—Moderately deep, deep, very deep moderately well and well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches	Clymer-Dekalb complex, steep	Vie
CDE	SOI	004	This Clymer-Dekalb complex consists of Clymer and Dekalb soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Clymer soils are deep, well drained soils found on upland ridges and side slopes. Estimated permeability is moderate (0.6 to 2.0 inches per hour). These soils have a medium textured surface and subsurface. This soil is underlain by siltstone or sandstone bedrock at depths of 40 to 60 inches. Natural fertility of the Clymer soil is moderate and available		

			water capacity is moderate to high. Dekalb soils are moderately deep, well drained soils on uplands. They have moderately coarse textured surface layers and moderately coarse to medium textured subsoils. The subsoil has over 35% sandstone fragments. The subsoil has moderately rapid (estimated 2.0 to 6.0 inches per hour) permeability. They are underlain at 20 to 40 inches by sandstone, interbedded with some siltstone and shale. Natural fertility of the Dekalb soil is low and available water capacity is very low to moderate.		
CDF	AGR	109F	These soils are not suited to cultivated crops, hay or pasture. The hazard of erosion is very severe in unprotected areas.	Clymer-Dekalb complex, very steep	VIIe
CDF	GSG	AH3	AH3—Acid Hills—Moderately deep, deep, very deep moderately well and well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches	Clymer-Dekalb complex, very steep	VIIe
CDF	SOI	004	This Clymer-Dekalb complex consists of Clymer and Dekalb soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Clymer soils are deep, well drained soils found on upland ridges and side slopes. Estimated permeability is moderate		

			(0.6 to 2.0 inches per hour). These soils have a medium textured surface and subsurface. This soil is underlain by siltstone or sandstone bedrock at depths of 40 to 60 inches. Natural fertility of the Clymer soil is moderate and available water capacity is moderate to high. Dekalb soils are moderately deep, well drained soils on uplands. They have moderately coarse textured surface layers and moderately coarse to medium textured subsoils. The subsoil has over 35% sandstone fragments. The subsoil has moderately rapid (estimated 2.0 to 6.0 inches per hour) permeability. They are underlain at 20 to 40 inches by sandstone, interbedded with some siltstone and shale. Natural fertility of the Dekalb soil is low and available water capacity is very low to moderate.		
CoB	AGR	003B	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If this soil is cultivated, farming on the contour, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until	Coolville silt loam, 3 to 10 percent slopes	IIe

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			the soil is reasonably firm.		
CoB	GSG	FL3	FL3—Fertile Loams--Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater then 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Coolville silt loam, 3 to 10 percent slopes	IIe
CoB	SOI	003	Coolville soils are deep, and moderately well drained (seasonal high water table at depth of 16 to 30 inches below the soil surface) soil. Estimated permeability is slow (0.06 to 0.2 inches per hour). These soils have a medium textured surface layer and a moderately fine to fine subsoil. Bedrock is generally at depths of 40 to 60 inches, and is generally rippable with light power equipment. Natural fertility is moderate and available water capacity is moderate or high.		
CoC	AGR	003C	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses	Coolville silt loam, 10 to 20 percent slopes	IIIe

			and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.		
CoC	GSG	FL3	FL3—Fertile Loams--Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater then 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Coolville silt loam, 10 to 20 percent slopes	IIIe
CoC	SOI	003	Coolville soils are deep, and moderately well drained (seasonal high water table at depth of 16 to 30 inches below the soil surface) soil. Estimated permeability is slow (0.06 to 0.2 inches per hour). These soils have a medium textured surface layer and a moderately fine to fine subsoil. Bedrock is generally at depths of 40 to 60 inches, and is generally rippable with light power equipment. Natural fertility is moderate and available water capacity is moderate or high.		
CrC3	AGR	014C3	These soils have limited suitability for cultivated crops and are better suited to hay or pasture. The hazard of erosion, which is very severe in unprotected areas, is a major management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If the	Coolville silty clay loam, 10 to 20 percent slopes, severely eroded	IVe

			soils are used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm.		
CrC3	GSG	FL3	FL3—Fertile Loams-- Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater then 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Coolville silty clay loam, 10 to 20 percent slopes, severely eroded	IVe
CrC3	SOI	003	Coolville soils are deep, and moderately well drained (seasonal high water table at depth of 16 to 30 inches below the soil surface) soil. Estimated permeability is slow (0.06 to 0.2 inches per hour). These soils have a medium textured surface layer and a moderately fine to fine subsoil. Bedrock is generally at depths of 40 to 60 inches, and is generally rippable with light power equipment. Natural fertility is moderate and available water capacity is moderate or high.		
Ct	AGR	017	This soil is suited to cultivated crops and to hay and pasture. Cultivated crops can be grown continuously, but the soil needs the protection of a cover crop. Working the residue from the cover crop into the soil helps to maintain fertility and tilth. If this soil is used for pasture, the major	Cotaco loam	IIw

			management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.		
Ct	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Cotaco loam	IIw
Ct	SOI	005	These Cotaco soils are very deep, moderately well drained (seasonal high water table at a depth of 16 to 24 inches) and are found on high alluvial bottoms. Cotaco soils have a loam surface texture and dominantly clay loam subsoil. These soils have a moderate soil permeability (0.6 to 2.0 inches per hour). Thes soils may flood rarely under normal conditions but for more specific information on flooding consult the Army Corps of Engineers. Depth to bedrock is greater than 5 feet. Natural fertility is low to moderate and available water capacity is moderate to high.		
Dm	GSG	NS			
Dm	SOI	006	These Dump areas are accumulations of waste from industrial, commercial, and municipal operations. Tailings, chemicals, fly ash, coal dumps, and solid waste are examples of areas included in this unit. Many areas of Dumps are not		

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			covered by soil material.		
FL	AGR	039A	This soil is not suited to cultivated crops unless artificial drainage was installed prior to 1985 as a management practice. The soil is better suited to water-tolerant hay or pasture plants or wildlife habitat in a natural state. Using conservation tillage systems and a crop sequence that includes hay, delaying tillage until the soil is reasonably dry, and returning crop residue to the soil help to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.	Fluvaquents	IIIw
FL	GSG	W3	W3 Wetlands—Very deep, poorly and very poorly drained soils with low to moderate natural fertility. High soil moisture holding capacity and pH ranges from 4.0 to 6.o. Annual precipitation is 41 to 50 inches.	Fluvaquents	IIIw
FL	SOI	007	These (Fluvaquents) soils are nearly level, poorly to somewhat poorly drained (seasonal high water table at or near the soil surface to a depth of 16 inches), deep soils and mainly on floodplains. They have a medium surface texture and medium to fine textured subsoil. These soils are too variable to estimate the permeability. Bedrock is usually at depths greater than 4 feet and is generally		

			rippable with light power equipment. Natural fertility is low to moderate and available water capacity is moderate to high.		
GlC	AGR	008C	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.	Gilpin silt loam, 10 to 20 percent slopes	IIIe
GlC	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Gilpin silt loam, 10 to 20 percent slopes	IIIe
GlC	SOI	008	Gilpin soil are moderately deep, well drained soils formed in residuum from acid shale, siltstone and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per		

			hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility is low or moderate and available water capacity is low or moderate.		
GlD	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.		
GlD	SOI	008	Gilpin soil are moderately deep, well drained soils formed in residuum from acid shale, siltstone and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility is low or moderate and available water capacity is low or moderate.		
GlE	AGR	008E	This soil is not suited to cultivated crops or hay, but is suited to pasture. The hazard of erosion is very severe in unprotected areas and is a major management concern. If this soils is used for pasture, overgrazing is a major management concern. If this soil is used for pasture,	Gilpin silt loam, 30 to 40 percent slopes	Vie

			the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.		
GlE	GSG	AH3	AH3—Acid Hills—Moderately deep, deep, very deep moderately well and well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches	Gilpin silt loam, 30 to 40 percent slopes	Vie
GlE	SOI	008	Gilpin soil are moderately deep, well drained soils formed in residuum from acid shale, siltstone and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. These soils generally have 10 to 35 percent rock fragments in the subsoil. Estimate soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility is low or moderate and available water capacity is low or moderate.		
GpC	AGR	009C	These soils are suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil help to control	Gilpin-Upshur silt loams, 10 to 20 percent slopes	IIIe

			erosion and to maintain fertility and tilth. If these soils are used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the Upshur soil is reasonably firm.		
GpC	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Gilpin-Upshur silt loams, 10 to 20 percent slopes	IIIe
GpC	SOI	009	This Gilpin-Upshur complex consists of Gilpin and Upshur soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Gilpin soils are moderately deep, well drained soils which formed from acid shale, siltstone, and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. Estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility of the Gilpin soil is low or moderate and available water capacity is low or moderate. Upshur soils are deep well drained soils which formed in limy material weathered from red		

			and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is very slow (less than 0.2 inches per hour). The depth to bedrock is generally at depths ranging from 40 to 60 inches and rippable with light power equipment. Natural fertility of the Upshur soil is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard, especially on slopes greater than 8 percent. The subsoil is highly susceptible to shrinking when dry and swelling when wet.		
GpD	AGR	009D	These soils have limited suitability for cultivated crops and are better suited to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a major management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil are practices that help to control erosion and to maintain fertility and tilth. If these soils are used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the Upshur soil is reasonably firm.	Gilpin-Upshur silt loams, 20 to 30 percent slopes	IVe
GpD	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep	Gilpin-Upshur silt loams, 20 to 30	IVe

			moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	percent slopes	
GpD	SOI	009	This Gilpin-Upshur complex consists of Gilpin and Upshur soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Gilpin soils are moderately deep, well drained soils which formed from acid shale, siltstone, and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. Estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility of the Gilpin soil is low or moderate and available water capacity is low or moderate. Upshur soils are deep well drained soils which formed in limy material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is very slow (less than 0.2 inches per hour). The depth to bedrock is generally at depths ranging from 40 to 60 inches and rippable with light power equipment. Natural fertility of the		

			Upshur soil is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard, especially on slopes greater than 8 percent. The subsoil is highly susceptible to shrinking when dry and swelling when wet.		
GRE	AGR	009E	These soils are not suited to cultivated crops or hay, but are suited to pasture. The hazard of erosion is very severe in unprotected areas and is a major management concern. If these soils are used for pasture, overgrazing is a major management concern. Proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the Upshur soil is reasonably firm are major pasture management needs.	Filpin-Upshur silt loams, steep	VIe
GRE	GSG	AH3	AH3—Acid Hills—Moderately deep, deep, very deep moderately well and well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches	Filpin-Upshur silt loams, steep	VIe
GRE	SOI	009	This Gilpin-Upshur complex consists of Gilpin and Upshur soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Gilpin soils are moderately deep, well drained soils which formed from acid		

			shale, siltstone, and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. Estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility of the Gilpin soil is low or moderate and available water capacity is low or moderate. Upshur soils are deep well drained soils which formed in limy material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is very slow (less than 0.2 inches per hour). The depth to bedrock is generally at depths ranging from 40 to 60 inches and rippable with light power equipment. Natural fertility of the Upshur soil is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard, especially on slopes greater than 8 percent. The subsoil is highly susceptible to shrinking when dry and swelling when wet.		
GRF	AGR	009F	These soils are not suited to cultivated crops or hay and are difficult to manage for pasture. The hazard of erosion is very severe in unprotected areas.	Gilpin-Upshur silt loams, very steep	VIIe
GRF	GSG	AH3	AH3—Acid Hills—Moderately deep, deep, very deep moderately well and well	Gilpin-Upshur silt loams, very steep	VIIe

			drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches		
GRF	SOI	009	This Gilpin-Upshur complex consists of Gilpin and Upshur soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Gilpin soils are moderately deep, well drained soils which formed from acid shale, siltstone, and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. Estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility of the Gilpin soil is low or moderate and available water capacity is low or moderate. Upshur soils are deep well drained soils which formed in limy material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is very slow (less than 0.2 inches per hour). The depth to bedrock is generally at depths ranging from 40 to 60 inches and rippable with light power equipment.		

			Natural fertility of the Upshur soil is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard, especially on slopes greater than 8 percent. The subsoil is highly susceptible to shrinking when dry and swelling when wet.		
GsC3	AGR	010C	These soils have limited suitability for cultivated crops and are better suited to hay and pasture. The hazard of erosion, which is very severe in unprotected areas, is a major management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crops residue to the soil help to control erosion and to maintain fertility and tilth. If these soils are used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the Upshur soil is reasonably firm.	Gilpin-Upshur silt loam, 10 to 20 percent slopes, severely eroded	IVe
GsC3	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Gilpin-Upshur silt loam, 10 to 20 percent slopes, severely eroded	IVe
GsC3	SOI	010	This Gilpin-Upshur complex soil unit consists of Gilpin and Upshur soils which are intermixed in such an		

			intricate pattern that they cannot be separated in mapping at this scale. Soil slips and shallow gullies are found in some areas of this severely eroded unit. Gilpin soils are moderately deep, well drained soils which formed from acid shale, siltstone, and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. Estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility of the Gilpin soil is low or moderate and available water capacity is low or moderate. Upshur soils are deep well drained soils which formed in limy material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is very slow (less than 0.2 inches per hour). The depth to bedrock is generally at depths of 40 to 60 inches and is rippable with light power equipment. Natural fertility of the Upshur soil is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard, especially on slopes greater than 8 percent. Their subsoil are highly susceptible to shrinking when dry and swelling when wet.		

KANAWHA COUNTY,WEST VIRGINIA
Nontechnical Soils Descriptions
AGR (Agronomic)
SOI (Basic Soils)
GSG (Grassland Suitability)
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URB (Urbanland)

GsD3	AGR	010D	These soils are not suited to cultivated crops or hay, but are suited to pasture. The hazard of erosion is very severe in unprotected areas and is a major management concern. If these soils are used for pasture, overgrazing can result in more severe erosion. Proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the Upshur soil is reasonably firm are major pasture management needs.	Gilpin-Upshur complex 20 to 30 percent slopes, severely eroded	Vie
GsD3	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Gilpin-Upshur complex 20 to 30 percent slopes, severely eroded	Vie
GsD3	SOI	010	This Gilpin-Upshur complex soil unit consists of Gilpin and Upshur soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Soil slips and shallow gullies are found in some areas of this severely eroded unit. Gilpin soils are moderately deep, well drained soils which formed from acid shale, siltstone, and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. Estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The		

			bedrock is generally rippable with light power equipment. Natural fertility of the Gilpin soil is low or moderate and available water capacity is low or moderate. Upshur soils are deep well drained soils which formed in limy material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is very slow (less than 0.2 inches per hour). The depth to bedrock is generally at depths of 40 to 60 inches and is rippable with light power equipment. Natural fertility of the Upshur soil is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard, especially on slopes greater than 8 percent. Their subsoil are highly susceptible to shrinking when dry and swelling when wet.		
GuE3	AGR	010E	These soils are not suited to cultivated crops or hay and are difficult to manage for pasture. The hazard of erosion is very severe in unprotected areas. Bare areas are difficult to revegetate, but they should be seeded to permanent cover. Mulching will help protect seeded areas until the plants become established.	Gilpin-Upshur complex, steep, severely eroded	VIIe
GuE3	GSG	AH3	AH3—Acid Hills—Moderately deep, deep, very deep moderately well and well drained soils with low natural fertility. Moderate	Gilpin-Upshur complex, steep, severely eroded	VIIe

			to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches		
GuE3	SOI	010	This Gilpin-Upshur complex soil unit consists of Gilpin and Upshur soils which are intermixed in such an intricate pattern that they cannot be separated in mapping at this scale. Soil slips and shallow gullies are found in some areas of this severely eroded unit. Gilpin soils are moderately deep, well drained soils which formed from acid shale, siltstone, and sandstone. They have medium textured surface and medium to moderately fine textured subsoil. Estimated soil permeability is moderate (0.6 to 2.0 inches per hour). Bedrock is at depths of 20 to 40 inches. The bedrock is generally rippable with light power equipment. Natural fertility of the Gilpin soil is low or moderate and available water capacity is low or moderate. Upshur soils are deep well drained soils which formed in limy material weathered from red and olive shale. They have moderately fine textured surface and fine textured subsoils which become sticky and plastic when wet. Estimated soil permeability is very slow (less than 0.2 inches per hour). The depth to bedrock is generally at depths of 40 to 60 inches and is rippable		

			with light power equipment. Natural fertility of the Upshur soil is moderately high and available water capacity is moderate to high. Upshur soils have a slip hazard, especially on slopes greater than 8 percent. Their subsoil are highly susceptible to shrinking when dry and swelling when wet.		
HaA	AGR	034A	This soil is well suited to cultivated crops and to hay and pasture. Cultivated crops can be grown continuously, but the soil needs the protection of a cover crop. Working the residue from the cover crop into the soil helps to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.	Hackers silt loam, 0 to 3 percent slopes	I
HaA	GSG	ML3	ML3—Moist Loams—Deep and very deep, well drained soils with high natural fertility. High moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Hackers silt loam, 0 to 3 percent slopes	I
HaA	SOI	011	These Hackers soils are deep (greater than 5 feet to bedrock), well drained soils that formed in alluvial high bottom sediments. They have medium textured surface layer and a medium to moderately fine textured subsoil. Estimated permeability is moderate (0.6 to 2.0 inches per hour). These soils have a		

			rare flood hazard and they are flooded only when flood waters are at their highest. Natural fertility is high and available water capacity is high.		
HaB	AGR	034B	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If the soil is cultivated, using a conservation tillage system, farming on the contour, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.	Hackers silt loam, 3 to 8 percent slopes	IIe
HaB	GSG	ML3	ML3—Moist Loams—Deep and very deep, well drained soils with high natural fertility. High moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Hackers silt loam, 3 to 8 percent slopes	IIe
HaB	SOI	011	These Hackers soils are deep (greater than 5 feet to bedrock), well drained soils that formed in alluvial high bottom sediments. They have medium textured surface layer and a medium to moderately fine textured subsoil. Estimated permeability is moderate (0.6 to 2.0 inches per hour). These soils have a rare flood hazard and they are flooded only when flood		

			waters are at their highest. Natural fertility is high and available water capacity is high.		
KaA	AGR	034A	This soil is well suited to cultivated crops and to hay and pasture. Cultivated crops can be grown continuously, but the soil needs the protection of a cover crop. Working the residue from the cover crop into the soil helps to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.	Kanawha fine sandy loam, 0 to 3 percent slopes	I
KaA	GSG	ML3	ML3—Moist Loams—Deep and very deep, well drained soils with high natural fertility. High moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Kanawha fine sandy loam, 0 to 3 percent slopes	I
KaA	SOI	012	These Kanawha soils are very deep (greater than 6 feet to bedrock), well drained soils that formed in alluvial high bottom sediments. They have medium to moderately coarse textured surface layer and generally a medium textured subsoil. Estimated permeability is moderate (0.6 to 2.0 inches per hour). These soils have a rare flood hazard in areas not protected from flooding. They are flooded only when flood waters are at their highest. Consult the Army Corps of Engineers for more specific information on flooding frequency. Natural		

			fertility is high and available water capacity is high.		
KaB	AGR	034B	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If the soil is cultivated, using a conservation tillage system, farming on the contour, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.	Kanawha fine sandy loam, 3 to 8 percent slope	IIe
KaB	GSG	ML3	ML3—Moist Loams—Deep and very deep, well drained soils with high natural fertility. High moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Kanawha fine sandy loam, 3 to 8 percent slope	IIe
KaB	SOI	012	These Kanawha soils are very deep (greater than 6 feet to bedrock), well drained soils that formed in alluvial high bottom sediments. They have medium to moderately coarse textured surface layer and generally a medium textured subsoil. Estimated permeability is moderate (0.6 to 2.0 inches per hour). These soils have a rare flood hazard in areas not protected from flooding. They are flooded only when flood waters are at their highest. Consult the Army		

			Corps of Engineers for more specific information on flooding frequency. Natural fertility is high and available water capacity is high.		
LaD	AGR	028D	This soil has limited suitability for cultivated crops. It is better suited to hay or pasture. The hazard of erosion, which is severe in unprotected areas, is a major management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.	Ladig channery sandy loam, 15 to 25 percent slopes	IVe
LaD	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Ladig channery sandy loam, 15 to 25 percent slopes	IVe
LaD	SOI	013	These Laidig soils are well drained, very deep soils formed in colluvium on footslopes from erosion and weathering of sandstone, shale and siltstone on residuum hillsides. These soils generally have a sandy		

			loam surface and channery loam subsoil. Permeability is moderately slow (estimated at 0.2 to 0.6 inches per hour) in the fragipan and moderately rapid (estimated at 2.0 to 6.0 inches per hour) above the pan. A seasonal high water table is found at depths of 30 to 48 inches and bedrock is found at depths of 5 feet or more. Natural fertility is low to moderate and available water capacity is moderate. This soil is susceptible to soil slippage.		
LaE	AGR	028E	This soil is not suited to cultivated crops or hay, but it is suited to pasture. The hazard of erosion, which is very severe in unprotected areas, is a major management concern. If this soil is used for pasture, overgrazing is a major management concern. Major pasture needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.	Laidig channery sandy loam 25 to 35 percent slopes	Vie
LaE	GSG	AH3	AH3—Acid Hills—Moderately deep, deep, very deep moderately well and well drained soils with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches	Laidig channery sandy loam 25 to 35 percent slopes	Vie
LaE	SOI	013	These Laidig soils are well drained, very deep soils formed in colluvium on		

			footslopes from erosion and weathering of sandstone, shale and siltstone on residuum hillsides. These soils generally have a sandy loam surface and channery loam subsoil. Permeability is moderately slow (estimated at 0.2 to 0.6 inches per hour) in the fragipan and moderately rapid (estimated at 2.0 to 6.0 inches per hour) above the pan. A seasonal high water table is found at depths of 30 to 48 inches and bedrock is found at depths of 5 feet or more. Natural fertility is low to moderate and available water capacity is moderate. This soil is susceptible to soil slippage.		
LdB	AGR	034B	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If the soil is cultivated, using a conservation tillage system, farming on the contour, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.	Laidig channery loam, 3 to 8 percent slopes	IIe
LdB	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally	Laidig channery loam, 3 to 8 percent slopes	IIe

			less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.		
LdB	SOI	013	These Laidig soils are well drained, very deep soils formed in colluvium on footslopes from erosion and weathering of sandstone, shale and siltstone on residuum hillsides. These soils generally have a sandy loam surface and channery loam subsoil. Permeability is moderately slow (estimated at 0.2 to 0.6 inches per hour) in the fragipan and moderately rapid (estimated at 2.0 to 6.0 inches per hour) above the pan. A seasonal high water table is found at depths of 30 to 48 inches and bedrock is found at depths of 5 feet or more. Natural fertility is low to moderate and available water capacity is moderate. This soil is susceptible to soil slippage.		
LdC	AGR	028C	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational	Laidig channery loam, 8 to 15 percent slopes	IIIe

			grazing, and deferment of grazing in the spring until the soil is reasonably firm.		
LdC	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Laidig channery loam, 8 to 15 percent slopes	IIIe
LdC	SOI	013	These Laidig soils are well drained, very deep soils formed in colluvium on footslopes from erosion and weathering of sandstone, shale and siltstone on residuum hillsides. These soils generally have a sandy loam surface and channery loam subsoil. Permeability is moderately slow (estimated at 0.2 to 0.6 inches per hour) in the fragipan and moderately rapid (estimated at 2.0 to 6.0 inches per hour) above the pan. A seasonal high water table is found at depths of 30 to 48 inches and bedrock is found at depths of 5 feet or more. Natural fertility is low to moderate and available water capacity is moderate. This soil is susceptible to soil slippage.		
MgB	AGR	014B	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If this soil is cultivated, farming on the contour, using a crop sequence that included hay, and returning crop residue to the soil help to control	Monongahela silt loam, 3 to 8 percent slopes	IIe

			erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.		
MgB	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Monongahela silt loam, 3 to 8 percent slopes	IIe
MgB	SOI	014	These Monongahela soils are very deep, moderately well drained soils on high stream terraces. They have medium textured surface layers and medium to moderately fine textured subsoils. Monongahela soils have a firm and brittle fragipan layer 18 to 30 inches below the surface, which has slow (estimated 0.06 to 0.2 inches per hour) permeability. They have a seasonal high water table at 18 to 30 inches below the surface. Bedrock is generally at depths greater than 5 feet. Natural fertility is low and available water capacity is moderate.		
MgC	AGR	014C	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system,	Monongahela silt loam, 8 to 15 percent slopes	IIIe

			growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.		
MgC	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Monongahela silt loam, 8 to 15 percent slopes	IIIe
MgC	SOI	014	These Monongahela soils are very deep, moderately well drained soils on high stream terraces. They have medium textured surface layers and medium to moderately fine textured subsoils. Monongahela soils have a firm and brittle fragipan layer 18 to 30 inches below the surface, which has slow (estimated 0.06 to 0.2 inches per hour) permeability. They have a seasonal high water table at 18 to 30 inches below the surface. Bedrock is generally at depths greater than 5 feet. Natural fertility is low and available water capacity is moderate.		
Mo	AGR	016	This soil is suited to cultivated crops and to hay	Mashannon silt loam	IIw

			and pasture. Cultivated crops can be grown continuously, but the soil needs the protection of a cover crop. Working the residue from the cover crop into the soil helps to maintain fertility and tilth. In places, crops are subject to damage from flooding. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes, and deferment of grazing in the spring until the soil is reasonably firm.		
Mo	GSG	ML3	ML3—Moist Loams—Deep and very deep, well drained soils with high natural fertility. High moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Mashannon silt loam	IIw
Mo	SOI	016	These Moshannon soils are deep, well drained, and have formed in recent alluvial sediments along major streams. The Moshannon soils have a moderate permeability (0.6 to 2.0 inches per hour). They generally have a medium soil texture in the surface and subsoil. Bedrock is generally at depths greater than 5 feet. These soils are generally subject to occasional flooding. Natural fertility is high and available water capacity is high.		
Se	AGR	017A	This soil is suited to cultivated crops and to hay and pasture. Cultivated	Senecaville silt loam	IIw

			crops can be grown continuously, but the soil needs the protection of a cover crop. Working the residue from the cover crop into the soil helps to maintain fertility and tilth. In places crops are subject to damage from flooding. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.		
Se	GSG	ML3	ML3—Moist Loams—Deep and very deep, well drained soils with high natural fertility. High moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Senecaville silt loam	IIw
Se	SOI	017	These Senecaville soils are very deep (generally greater than 5 feet to bedrock), moderately well drained (seasonal high water table at a depth of 16 to 24 inches) soils that have formed in alluvial sediments along streams and drainageways. They generally have a silt loam surface layer and a silt loam subsoil. The estimated soil permeability is moderate (0.6 to 2.0 inches per hour). These soils have a flood hazard, but may have included areas of no flooding. Natural fertility is high and available water capacity is high.		
Sn	AGR	015	This soil is suited to cultivated crops and to hay	Sensabaugh silt loam	IIw

			and pasture. Cultivated crops can be grown continuously but the soil needs the protection of a cover crop. Working the residue from the cover crop into the soil helps to maintain fertility and tilth. In places, crops are subject to damage from flooding. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes, and deferment of grazing until the soil is reasonably firm.		
Sn	GSG	ML3	ML3—Moist Loams—Deep and very deep, well drained soils with high natural fertility. High moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Sensabaugh silt loam	IIw
Sn	SOI	015	These Sensabaugh soils are generally very deep (greater than 5 feet to bedrock), well drained soils found mostly on bottomland floodplains along small stream. These soils have a medium textured surface and a medium textured gravelly subsoil. The estimated soil permeability is moderate to moderately rapid (0.6 to 6.0 inches per hour). Sensabaugh soils have a gravel layer (15 to 45 percent rock fragments) at depths ranging from 20 to 40 inches. They generally flood occasionally with an exception of high bottoms or alluvial fan areas having a rare flood hazard. Natural		

			fertility is moderate or high and available water capacity is high.		
Ty	AGR	023	This soil without artificial drainage has limited suitability for cultivated crops and is better suited to water-tolerant hay or pasture plants. Using a conservation tillage system and a crop sequence that includes hay, delaying tillage until the soil is reasonably dry, and returning crop residue to the soil help to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.	Tyler silt loam	IIIw
Ty	GSG	W3	W3 Wetlands—Very deep, poorly and very poorly drained soils with low to moderate natural fertility. High soil moisture holding capacity and pH ranges from 4.0 to 6.o. Annual precipitation is 41 to 50 inches.	Tyler silt loam	IIIw
Ty	SOI	018	These Tyler soils are very deep (greater than 60 inches to bedrock), and somewhat poorly drained (seasonal high water table less than 15 inches of the surface). The subsoil has a fragipan that restricts the movement of water downward and limits soil permeability (estimated less than 0.2 inches per hour). This soil has silt loam surface and subsurface textures with slight increase of clay with depth and a more coarse, sandier		

			fragipan. Natural fertility is low and available water capacity is moderate.		
UA	AGR	19A	This soil is generally not suited to cultivated crops and to hay and pasture.	Udifluvents, gravelly	IIIs
UA	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Udifluvents, gravelly	IIIs
UA	SOI	019	Udifluvents, gravelly: These soils are extremely variable and are mostly excessively drained to moderately well drained soils on flood plains. Surface textures generally range from loamy sand and loam to gravelly loamly sand and subsoil textures are gravelly or very gravelly. Soil permeability is moderately rapid to rapid (estimated at 2.0 to more than 6.0 inches per hour). Bedrock is at depths greater than 4 feet. These soils are subject to frequent to occasaional flooding. The available water capacity is low to moderate.		
UB	AGR	20A	This soil is suited to cultivated crops and to hay and pasture. Cultivated crops can be grown continuously but the soil needs the protection of a cover crop. Working the residue from the cover crop into the soil helps to maintain fertility and tilth. In places, crops are subject to damage from flooding. If this soil is	Udifluvents, loamy	IIIs

			used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes, and deferment of grazing until the soil is reasonably firm.		
UB	GSG	AL3	AL3—Acid Loams—Moderately deep, deep, and very deep moderately well and well drained with low natural fertility. Moderate to high soil moisture holding capacity and pH is normally less than 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches.	Udifluvents, loamy	IIIs
UB	SOI	020	Udifluvents, loamy: These soils are extremely variable and are mostly excessively drained to moderately well drained soils on flood plains. Surface textures generally range from loamy sand to loam and subsoil textures are loamy sand or sandy loam to gravelly sandy loam to gravelly loamy sand. Soil permeability is moderately to moderately rapid (estimated at 0.6 to 6.0 inches per hour). Bedrock is at depths greater than 4 feet. These soils are subject to frequent to occasional flooding. The available water capacity is low to moderate.		
UC	GSG	NS	NS—Not Suited—All other soils that have a combination of soil properties and climate limitations that make them not suited for forage production because adequate growth for forage use plus soil stabilization is normally not possible		
UC	SOI	024	Udorthents, Smoothed-Urban		

			land complex: This is a miscellaneous area of disturbed soil material, and impervious urban structures like roads, parking lots, and buildings of all kinds. This map unit is too variable to assign any specific soil properties. The miscellaneous soil area ranges from dominantly clay to loam soil with or without rock material ranging from a few gravels to a massive bedrock escarpment.		
UD	AGR	046	These soils are not suited to cultivated crops or hay and are difficult to manage for pasture. They are better suited to woodland or wildlife uses.	Udorthents, strip mine	
UD	SOI	026	Udorthents, Strip Mine: This is a miscellaneous area of disturbed soil material on an area that was surfaced mined for coal. This unit may include areas of natural soils between strip benches or around edge of unit. These soils are generally more than 3 feet to bedrock, loamy, rock fragments range from 30 to 80 percent, soil permeability is too variable to rate and slopes range from nearly level areas on ridgetops and benches to almost vertical high walls. These disturbed soils are too variable to assign specific soil properties.		
Ue	GSG	NS	NS—Not Suited—All other soils that have a combination of soil properties and climate limitations that make them not suited for forage production because adequate growth for forage use plus soil stabilization is normally not possible		

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Ue	SOI	025	Urbanland: This is a miscellaneous area dominated by buildings, roads, parking lots, and other non-soil areas.		
Uf	GSG	NS	NS—Not Suited—All other soils that have a combination of soil properties and climate limitations that make them not suited for forage production because adequate growth for forage use plus soil stabilization is normally not possible		
Uf	SOI	021	Urban land-Fluvaquents complex: This unit is dominated by Urban land and disturbed soil material that is too variable to assign specific soil properties. Fluvaquents: The Fluvaquent soils part of this unit are nearly level, poorly to somewhat poorly drained (seasonal high water table at or near the soil surface to a depth of 16 inches), deep soils and mainly on floodplains. They have a medium surface texture and medium to fine textured subsoil. These soils are too variable to estimate the permeability. Bedrock is usually at depths greater than 4 feet and is generally rippable with light power equipment. The available water capacity is moderate to high.		
Uk	GSG	NS	NS—Not Suited—All other soils that have a combination of soil properties and climate limitations that make them not suited for forage production because adequate growth for forage use plus soil stabilization is normally not possible		

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Uk	SOI	027	This Urbanland-Kanawha unit is dominated by Urbanland and disturbed soil material that is too variable for a specific soil type. The natural soil exhibiting specific soil properties in this unit is the Kanawha soil. These Kanawha soils are very deep (greater than 6 feet to bedrock), well drained soils that formed in alluvial high bottom sediments. They have medium to moderately coarse textured surface layer and generally a medium textured subsoil. Estimated permeability is moderate (0.6 to 2.0 inches per hour). Natural fertility is high and available water capacity is high. These soils have a rare flood hazard. They are flooded only when flood waters are at their highest. Consult the Army Corps of Engineers for more specific information on flooding frequency.		
Ut	GSG	NS	NS—Not Suited—All other soils that have a combination of soil properties and climate limitations that make them not suited for forage production because adequate growth for forage use plus soil stabilization is normally not possible		
Ut	SOI	022	Urban land-Tyler Complex: This unit is dominated by Urbanland and disturbed soil material that is too variable for a specific soil type. The Tyler soil is the most dominant natural soil in this unit. These Tyler soils are very deep (greater than 60 inches to bedrock),		

			and somewhat poorly drained (seasonal high water table less than 15 inches of the surface). The subsoil has a fragipan that restricts the movement of water downward and limits soil permeability (estimated less than 0.2 inches per hour). This soil has medium silt loam surface textures and medium subsurface textures ranging from silt loam to clay loam, and some areas may have a sandy loam subsurface with a weak fragipan. Natural fertility is low and available water capacity is moderate.		
VaB	AGR	034B	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate in unprotected areas, is a management concern. If the soil is cultivated, using a conservation tillage system, farming on the contour, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include rotational grazing and proper stocking rates to maintain desirable grasses and legumes.	Vandalia silt loam, 3 to 8 percent slopes	IIe
VaB	GSG	FL3	FL3—Fertile Loams-- Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater then 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50	Vandalia silt loam, 3 to 8 percent slopes	IIe

			inches		
VaB	SOI	028	These Vandalia soils are well drained, red soils on colluvial footslopes. They have a moderately fine textured surface and a fine textured subsoil. Estimated permeability is moderately slow to slow (0.6 to 0.06 inches per hour). Vandalia soils have a slip hazard, especially when slopes are greater than 8%. Their subsoils are highly susceptible to shrinking when drying and swelling upon wetting. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate or high and available water capacity is moderate or high.		
VaC	AGR	028C	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.	Vandalia silt loam, 8 to 15 percent slopes	IIIe
VaC	GSG	FL3	FL3—Fertile Loams--Moderately deep, deep, and very deep moderately well and well drained soils with	Vandalia silt loam, 8 to 15 percent slopes	IIIe

			moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater then 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches		
VaC	SOI	028	These Vandalia soils are well drained, red soils on colluvial footslopes. They have a moderately fine textured surface and a fine textured subsoil. Estimated permeability is moderately slow to slow (0.6 to 0.06 inches per hour). Vandalia soils have a slip hazard, especially when slopes are greater than 8%. Their subsoils are highly susceptible to shrinking when drying and swelling upon wetting. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate or high and available water capacity is moderate or high.		
VaD	AGR	028D	This soil has limited suitability for cultivated crops. It is better suited to hay or pasture. The hazard of erosion, which is severe in unprotected areas, is a major management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to	Vandalia silt loam, 15 to 25 percent slopes	IVe

			maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.		
VaD	GSG	FL3	FL3—Fertile Loams-- Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater then 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Vandalia silt loam, 15 to 25 percent slopes	IVe
VaD	SOI	028	These Vandalia soils are well drained, red soils on colluvial footslopes. They have a moderately fine textured surface and a fine textured subsoil. Estimated permeability is moderately slow to slow (0.6 to 0.06 inches per hour). Vandalia soils have a slip hazard, especially when slopes are greater than 8%. Their subsoils are highly susceptible to shrinking when drying and swelling upon wetting. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate or high and available water capacity is moderate or high.		
VaE	AGR	028E	This soil is not suited to cultivated crops or hay, but it is suited to pasture. The hazard of erosion, which is very severe in unprotected areas, is a major management concern. If this soil is used for pasture, overgrazing is a major management concern. Major pasture needs include proper stocking rates to	Vandalia silt loam, 25 to 35 percent slopes	Vie

			maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.		
VaE	GSG	FH3	FH3—Fertile Hills--Moderately deep, deep, and very deep moderately well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches	Vandalia silt loam, 25 to 35 percent slopes	Vie
VaE	SOI	028	These Vandalia soils are well drained, red soils on colluvial footslopes. They have a moderately fine textured surface and a fine textured subsoil. Estimated permeability is moderately slow to slow (0.6 to 0.06 inches per hour). Vandalia soils have a slip hazard, especially when slopes are greater than 8%. Their subsoils are highly susceptible to shrinking when drying and swelling upon wetting. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate or high and available water capacity is moderate or high.		
VdC3	AGR	028C3	This soil has limited suitability for cultivated crops. It is better suited to hay or pasture. The hazard of erosion, which is very severe in unprotected areas, is a major management concern. Using a conservation tillage system, growing crops in contour strips, maintaining sod in	Vandalia silty clay loam, 8 to 15 percent slopes, severely eroded	IVe

			shallow drainageways, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.		
VdC3	GSG	FL3	FL3—Fertile Loams-- Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater then 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Vandalia silty clay loam, 8 to 15 percent slopes, severely eroded	IVe
VdC3	SOI	029	These severely eroded Vandalia soils have little or no top soil exposing the subsoil in some locations. The Vandalia soils are well drained, red soils on colluvial footslopes. They have a moderately fine textured surface and a fine textured subsoil. Estimated permeability is moderately slow to slow (0.6 to 0.06 inches per hour). Vandalia soils have a slip hazard, especially when slopes are greater than 8%. Their subsoils are highly susceptible to shrinking when drying and swelling upon wetting. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate or high and available water		

			capacity is moderate or high.		
VdD3	AGR	028DE	This soil is not suited to cultivated crops and has limited suitability for hay, but it is suited to pasture. The hazard of erosion, which is very severe in unprotected areas, is a major management concern. If this soil is used for pasture, overgrazing is a major management concern. Major pasture needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.	Vandalia silty clay loam, 15 to 25 percent slopes, severely eroded	IIIe
VdD3	GSG	FL3	FL3—Fertile Loams-- Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater then 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Vandalia silty clay loam, 15 to 25 percent slopes, severely eroded	IIIe
VdD3	SOI	029	These severely eroded Vandalia soils have little or no top soil exposing the subsoil in some locations. The Vandalia soils are well drained, red soils on colluvial footslopes. They have a moderately fine textured surface and a fine textured subsoil. Estimated permeability is moderately slow to slow (0.6 to 0.06 inches per hour). Vandalia soils have a slip hazard, especially when slopes are greater than 8%. Their subsoils are highly susceptible to shrinking when drying and swelling		

			upon wetting. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate or high and available water capacity is moderate or high.		
VdE3	AGR	010E	These soils are not suited to cultivated crops or hay and are difficult to manage for pasture. The hazard of erosion is very severe in unprotected areas. Bare areas are difficult to revegetate, but they should be seeded to permanent cover. Mulching will help protect seeded areas until the plants become established.	Vandalia silty clay loam, 25 to 35 percent slopes	VIIe
VdE3	GSG	FH3	FH3—Fertile Hills--Moderately deep, deep, and very deep moderately well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater than 5.3. Slope ranges from 25 to 60 percent or 25 to 45 percent if severely eroded. Annual precipitation is 41 to 50 inches	Vandalia silty clay loam, 25 to 35 percent slopes	VIIe
VdE3	SOI	029	These severely eroded Vandalia soils have little or no top soil exposing the subsoil in some locations. The Vandalia soils are well drained, red soils on colluvial footslopes. They have a moderately fine textured surface and a fine textured subsoil. Estimated permeability is moderately slow to slow (0.6 to 0.06 inches per hour). Vandalia soils have a slip hazard, especially when slopes are greater than 8%. Their subsoils are highly susceptible to shrinking		

			when drying and swelling upon wetting. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate or high and available water capacity is moderate or high.		
VeB	AGR	030B	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is moderate on unprotected areas, is a management concern, using a crop sequence that includes hay, and returning crop residue to the soil are practices that help to control erosion and pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.	Vincent silt loam, 3 to 8 percent slopes	IIe
VeB	GSG	FL3	FL3—Fertile Loams-- Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater then 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Vincent silt loam, 3 to 8 percent slopes	IIe
VeB	SOI	030	These Vincent soils are deep and moderately well drained (seasonal high water table within 18 to 24 inches of the surface). The Vincent soils have formed in slack water terrace sediments of the ancient Teays Lake. These soils have a medium textured surface and a fine textured subsoil causing a slow permeability (0.06 to		

			0.2 inches per hour). These silty clay subsoils have a moderate to high susceptibility to shrinking when drying and swelling when wet. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate and available water capacity is high.		
VeC	AGR	030C	This soil is suited to cultivated crops and to hay and pasture. The hazard of erosion, which is severe in unprotected areas, is a management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil are practices that help to control erosion and to maintain fertility and tilth. If this soil is used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing in the spring until the soil is reasonably firm.	Vincent silt loam, 8 to 15 percent slopes	IIIe
VeC	GSG	FL3	FL3—Fertile Loams-- Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater then 5.3. Slope ranges from 0 to 25 percent. Annual precipitation is 41 to 50 inches	Vincent silt loam, 8 to 15 percent slopes	IIIe
VeC	SOI	030	These Vincent soils are deep and moderately well drained (seasonal high water table within 18 to 24 inches of the surface). The Vincent		

			soils have formed in slack water terrace sediments of the ancient Teays Lake. These soils have a medium textured surface and a fine textured subsoil causing a slow permeability (0.06 to 0.2 inches per hour). These silty clay subsoils have a moderate to high susceptibility to shrinking when drying and swelling when wet. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate and available water capacity is high.		
VnC3	AGR	014C3	These soils have limited suitability for cultivated crops and are better suited to hay or pasture. The hazard of erosion, which is very severe in unprotected areas, is a major management concern. Using a conservation tillage system, growing crops in contour strips, using a crop sequence that includes hay, and returning crop residue to the soil help to control erosion and to maintain fertility and tilth. If the soils are used for pasture, the major management needs include proper stocking rates to maintain desirable grasses and legumes, rotational grazing, and deferment of grazing until the soil is reasonably firm.	Vincent silty clay loam, 8 to 15 percent slopes, severely eroded	IVe
VnC3	GSG	FL3	FL3—Fertile Loams-- Moderately deep, deep, and very deep moderately well and well drained soils with moderate natural fertility. Moderate soil moisture holding capacity and pH is normally greater then 5.3. Slope ranges from 0 to 25	Vincent silty clay loam, 8 to 15 percent slopes, severely eroded	IVe

			percent. Annual precipitation is 41 to 50 inches		
VnC3	SOI	030	These Vincent soils are deep and moderately well drained (seasonal high water table within 18 to 24 inches of the surface). The Vincent soils have formed in slack water terrace sediments of the ancient Teays Lake. These soils have a medium textured surface and a fine textured subsoil causing a slow permeability (0.06 to 0.2 inches per hour). These silty clay subsoils have a moderate to high susceptibility to shrinking when drying and swelling when wet. Bedrock is generally at depths greater than 5 feet. Natural fertility is moderate and available water capacity is high.		